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Federal Communications Commission  
Office of Secretary

William F. Caton, Acting Secretary  
Federal Communications Commission  
1919 M Street, N.W., Room 222  
Washington, D.C. 20554

Re: CellNet Data Systems, Inc.  
WT Docket No. 97-81

Dear Mr. Caton:

Please find enclosed, on behalf of CellNet Data Systems, Inc., an original and four copies of its Comments in the above-referenced proceeding.

Should you have any questions regarding this submission, please contact the undersigned.

Sincerely,

WILKINSON, BARKER, KNAUER & QUINN

*Jeffrey S. Cohen*

By: Lawrence J. Movshin  
Jeffrey S. Cohen

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BEFORE THE  
**Federal Communications Commission**  
WASHINGTON, DC 20554

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APR 21 1997

In the Matter of

Amendment of the Commission's Rules  
Regarding Multiple Address Systems

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)  
) WT Docket No. 97-81  
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Office of the Secretary  
Federal Communications Commission

**COMMENTS OF  
CELLNET DATA SYSTEMS, INC.**

**CELLNET DATA SYSTEMS, INC.**

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April 21, 1997

TABLE OF CONTENTS

	Page
Summary . . . . .	i
Introduction . . . . .	2
Spectrum Allocation . . . . .	5
MAS Licensing . . . . .	21
Construction Requirements . . . . .	30
Operational and Technical Flexibility . . . . .	31
Auction Issues . . . . .	33
Conclusion . . . . .	35
Pictorial Description of the CellNet System . . . . .	Appendix I
CellNet Reply Comments in Competitive Bidding Docket . . . . .	Appendix II

## SUMMARY

CellNet Data Systems, Inc. ("CellNet") is the leading innovator of highly efficient Multiple Address Systems ("MAS") networks. CellNet operates on MAS channels in the 928/952/956 MHz bands, and its Comments are primarily focussed on the Commission's proposals affecting these bands.

CellNet is opposed to the Commission's proposal to allocate the 928/952/956 MHz bands exclusively for private internal MAS operations. If the Commission's proposal is adopted, all future operations which include the offering of services using some or all of the excess capacity of an MAS system on a private carrier basis would be precluded. Instead, the Commission should maintain the status quo with respect to current licensing rules for the 928/952/956 MHz bands, subject to increased operational and technical flexibility otherwise adopted in this proceeding. The present system for allocating spectrum in these bands works very well; with the establishment of a finder's preference program (as described by CellNet in its Comments), and the assignment, in the near term, of additional spectrum in the 932/941 MHz band, most spectrum congestion issues will be resolved. There is no apparent justification for reserving spectrum exclusively for private internal use, yet such action would adversely affect both current and future operations in these bands. Existing licensees who do not operate their networks on a strictly private internal basis will be required to undertake significant efforts and expenditures of money in order to convert current system designs to operate in different MAS bands, while excess spectrum on private internal systems will remain unused -- a highly inefficient result.

Should the Commission not retain the status quo, it should nevertheless permit the use of the band for private carrier services, in addition to purely private internal operations, to the extent that such services are offered to satisfy the internal MAS communications needs of the

private carrier's customers. Private carriage offerings are currently employed to satisfy the internal communications needs of many entities, and will remain an important factor for many businesses who cannot afford to construct their own systems, do not have the level of communications to warrant allocation of an entire MAS channel, or do not have unique technology such as CellNet's to operate networks efficiently enough to be economically viable. Permitting the type of private carriers services described above would properly recognize and protect the essential role that private carriers currently serve in the 928/952/956 MHz bands.

Finally, if the Commission determines to reserve any MAS spectrum for private internal uses, only a portion of the 928/952/956 MHz bands is needed for such purposes; the balance can be licensed to any interested party without restriction on use for internal systems. While the Power Pool channels are used overwhelmingly by entities for strictly private internal purposes, a much smaller percentage of the General Access pool is used for such purposes. Accordingly, only the Power Pool channel should be allocated for private internal use.

All incumbent operations and uses must be fully grandfathered. In addition, incumbents in any MAS spectrum that may ultimately be reserved exclusively for private internal use should be provided a transition period in which to expand existing operating areas or add additional frequencies to existing stations to meet short-term growth.

Site-by-site licensing procedures should be retained for the 928/952/956 MHz bands not subject to auction. Channels allocated by auction should be awarded on a geographic area basis in order to permit maximum flexibility for the development of new products and services. The appropriate size of the geographic areas for the 932/941 MHz bands should be based on Economic Areas ("EAs"). However, in MAS bands containing incumbents, the FCC should use the smaller Component Economic Areas ("CEAs"). The large presence and variety of incumbents would act to devalue geographic areas which are based on larger market-EAs; CEAs

are more closely aligned with the current MAS operations. Incumbents located within a geographic area should be afforded a 45-mile protected service area, to mirror the current 90-mile separation for fixed MAS stations.

A limit of 100 kHz of spectrum should be imposed on licensees in the 932/941 MHz bands, and a spectrum cap of 50 kHz should be imposed on encumbered MAS bands. This approach will not inhibit innovation but will deter speculation and inefficient use. The proposed construction requirements for incumbents and geographic area licensees are appropriate for the future development of these bands. However, CellNet suggests that geographic licensees be provided with the option of demonstrating service to three-fifths of the population at the end of ten years, as an alternative to a showing of substantial service.

CellNet is generally supportive of greater operational and technical flexibility for the MAS bands. However, point-to-point operation should not be permitted in the well-established point-to-multipoint 928/952/956 MHz bands. Further, CellNet supports permitting mobile operations in the MAS bands, but only to the extent that such services are not interconnected with the public switched network in order to avoid the attendant additional regulation that would be required.

CellNet agrees that the Commission should follow the general auction provisions; however, the Commission should avoid the adoption of any auction procedures which would be particularly burdensome for small businesses, and should limit the availability of any financial incentives in the auction to true small businesses.

Finally, CellNet urges the Commission to lift the current application freeze as expeditiously as possible in order to avoid disruption to current business plans.

BEFORE THE  
**Communications**  
WASHINGTON, DC 20554

In the Matter of )  
 )  
 Amendment of the Commission's Rules ) WT Docket No. 97-81  
 Regarding Multiple Address Systems )

**To: The Commission**

**COMMENTS OF  
CELLNET DATA SYSTEMS, INC.**

CellNet Data Systems, Inc. (“CellNet”),<sup>1</sup> by its attorneys, and pursuant to Section 1.415 of the Commission’s Rules, hereby comments on the changes to Part 101 of the Commission’s Rules with respect to radiofrequency spectrum allocated to Multiple Address Systems (“MAS”) proposed by the Commission in the *Notice of Proposed Rule Making* (FCC 97-58, released Feb. 27, 1997) (the “*NPRM*”) in the above-referenced proceeding. In light of CellNet’s commitment to operating and innovating in this band, and given its past involvement in the development of MAS regulations, CellNet is keenly interested in the Commission’s expressed intention to revisit the licensing of MAS stations in the *NPRM*.

As discussed in detail below, CellNet applauds the agency's efforts to expedite the licensing and use of those parts of the MAS spectrum that have too long been fallow. CellNet also endorses the proposed technical flexibility that would be provided throughout the MAS spectrum. However, CellNet urges modification of the proposals dealing with those parts of the

<sup>1</sup> CellNet was organized as Domestic Automation Company in 1984, became CellNet Data Systems, Inc. in 1993, and became a publicly traded company (trading on NASDAQ) in 1996. CellNet's revenues have continued to grow, primarily on the strength of its success in penetrating the electric utilities market. CellNet currently has five contracts to provide remote meter reading services to the utilities industry.

MAS spectrum that are heavily utilized today, in order to avoid serious disruption and hardship to incumbent licensees who have, at substantial expense, developed significant, innovative, and efficient technologies and services on many of the allocated channels.

## I. INTRODUCTION

CellNet uses MAS stations, along with unlicensed Part 15 devices, to design, construct, own and operate private radio networks in various parts of the country that are used to provide a variety of information processing services to its customers. Currently, the principal application of these networks is the provision of remote meter reading services to electric and gas utility companies. CellNet is currently working to develop other data monitoring and control services, including the monitoring of vending machines, smoke and fire alarms, and home energy management systems. Key to CellNet's success has been its development of a new wireless data network technology that allows for the low cost deployment of a very high capacity network, using relatively modest amounts of spectrum. To accommodate the high endpoint (*i.e.* meter) density environments in which many utility companies operate, CellNet's MAS system is designed to serve far more remotes per master station (up to 200) than conventional MAS systems.<sup>2</sup> Utilizing a mini-cellular architecture in which each MAS channel is divided into as many as ten subchannels, CellNet is able serve thousands of remotes and hundreds of thousands

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<sup>2</sup> Currently, the rules require only that a minimum of four remotes be served by a single master station. § 101.147(b).

of endpoints per licensed channel.<sup>3</sup> No other company has been able to deploy and operate a fixed wireless network that can successfully read as many endpoints.

CellNet's spectral efficiencies have been consistently recognized by the Bureau and the Commission. In granting CellNet a waiver of the MAS rules that were in effect in order to accommodate subchannel operation, the Wireless Telecommunications Bureau noted in 1992 that the Company "has demonstrated that its system would use MAS spectrum more efficiently than systems normally accommodated on a 25 kHz channel. . . . [CellNet's] proposed digital capacity . . . represents a significant increase in efficiency in the use of MAS spectrum."<sup>4</sup> More recently, the Commission rewrote a portion of its MAS rules in response to CellNet's request to expressly accommodate CellNet's innovative technology. The Commission found that "[o]ne of our continuing objectives is to provide more flexible rules, so that new technologies and different system designs can be licensed to provide valuable services to the public. It appears that CellNet has found a novel way of employing its MAS spectrum."<sup>5</sup>

CellNet operates its own fixed, wide area MAS networks which read and collect data remotely from hundreds of thousands of a utility's meters deployed throughout a utility's service

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<sup>3</sup> Specifically, CellNet achieves this efficiency by creating 1.2 kHz subfrequencies within the 928/952/956 MHz bands. With this innovative technology, CellNet can operate four discrete subchannels within a 12.5 kHz license, or ten discrete subchannels within a 25 kHz license. By relying on architecture similar to that employed in cellular, ESMRs and PCS systems, CellNet is able to significantly multiply the number of remotes which can simultaneously utilize the channel. CellNet's use of the 928/952/956 MHz bands thus represents a significant departure from other uses of the band in its diversity, efficiency and reliability.

<sup>4</sup> *Domestic Automation Co., Waiver*, 7 FCC Rcd 6240 (Private Radio Bur. 1992).

<sup>5</sup> *In the Matter of Reorganization and Revision of Parts 1, 2, 21 and 94 of the Rules to Establish a New Part 101 Governing Terrestrial Microwave Fixed Radio Services*, WT Docket No. 94-148, *Report and Order*, 11 FCC Rcd 13449, 13469 (1996).

area. CellNet is currently licensed in more than 45 metropolitan areas, and all of its licenses are held in the 928/952/956 MHz bands (the "Private MAS Bands"). Licenses are held in the channels set aside for the General Access Pool, and in the Power Pool group of channels as a result of intercategory sharing.

CellNet's wireless system architecture consists of (1) numerous endpoints (*e.g.*, electric utility meters, vending machines, alarm monitors) which currently are designed to utilize spread spectrum technology in the unlicensed Part 15 spectrum to monitor and transmit various fields of data from the meter/machine to (2) the MicroCell Controllers (which are the MAS remote stations), which are designed to collect the data from up to 750 endpoints and transmit and receive from (3) the CellMasters (the MAS master stations).<sup>6</sup> Using proprietary software specifically designed to manage real-time data collection from up to several million endpoints, the CellMasters transmit the utility's metering data to the CellNet Operations Center, consisting of several computer work-stations manned by CellNet personnel, utilizing dedicated landline, fiber or fixed microwave facilities. The collected data is then made available to the CellNet customer-utility from the Operations Center for processing as such customer sees fit.<sup>7</sup>

This innovative network and service has been successfully deployed in several large urban areas and has been used to provide real-time metering information to utility companies pursuant to long-term contracts. The network meter reading functions performed by CellNet often complement the utility's own internal MAS networks, which are used to monitor and control the utility's distribution networks. CellNet continues to deploy additional network

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<sup>6</sup> A pictorial description of the CellNet System is attached hereto as Appendix I.

<sup>7</sup> The customer-utility is provided with access to a database containing the metering information using CellNet proprietary software and standard TCP/IP protocols.

capacity pursuant to its ongoing agreements, and has initiated trials with other utilities across the country.

CellNet does not generally offer the use of the CellNet MAS network to its customers, but rather uses the network as a communications resource (*i.e.* the backhaul function) necessary for the activities of its primary business operations (the provision of data developed in the monitoring of endpoints over its network). However, given its substantial capacity, CellNet is capable of providing services with its excess capacity to other business ventures as a substitute for their own, internal networks. For example, a CellNet utility customer could utilize the CellNet MAS network to transmit and receive signals to monitor and control certain devices in its power/gas/water distribution network, replacing internal radio networks (or landline facilities) that are currently used to perform such functions, at a substantial cost savings both in capital development and technical, maintenance, and operating resources. Such private carriage is only a minor part of CellNet's current operations although the network capacity gives CellNet the ability to substantially expand that sector of its business.

## II. SPECTRUM ALLOCATION

### 1. The 928/952/956 MHz Bands

#### A. The Commission Should Retain the Status Quo in the Private MAS Bands

Under existing rules, a variety of operations is permitted in the Private MAS Bands. Such operations include purely private internal uses, private carriers who use a portion of the band for their internal use and make available excess capacity on a private carrier basis to other private radio systems, and subscriber-based offerings. Indeed, as the Commission recognized in the *NPRM*, while the use of the Private MAS Bands satisfies substantial private internal communications needs, there is a significant presence of private carriers who co-exist with, as

well as provide services to, private internal users. Thus, any actions the Commission takes with respect to future licensing of the Private MAS Bands should consider and respect the resulting effects on the large numbers of incumbents whose use of the band is not strictly limited to private internal purposes.

Nevertheless, in the *NPRM* the Commission has tentatively concluded that the Private MAS Bands should be designated exclusively for purely private internal use, thereby precluding any future licensing of entities who intend to use the band for private carriage or to offer subscriber-based services on the channels. While existing licensees who use the band for private carriage or to offer subscriber-based services would be grandfathered in the band, and could continue to use their existing facilities for such non-internal purposes, they would be restricted from any future growth of their spectrum or service area using the Private MAS Bands.

CellNet strongly opposes this tentative allocation. Reserving these bands exclusively for private internal use would be an inefficient allocation of this spectrum, would be very disruptive to existing licensees, and would unnecessarily constrain future uses. To the contrary, the current frequency coordination process has worked well, ensuring that these bands are being shared efficiently among a large number and variety of MAS licensees.

The Private MAS Bands have developed over the years with a unique mix of disparate uses, and many independent users currently share this spectrum in a manner that has proven quite workable. Simply stated, this is a spectrum band without any licensing problems that warrant drastic wholesale allocation changes. To the extent that there have been frequency shortages in some areas, these shortages can be traced primarily to two problems (both of which can be readily resolved in this proceeding). There has been an artificial shortage of MAS channels while the Commission resolved the problems associated with the planned lottery of the 932/941 MHz bands, and the Commission has lacked the resources to enforce vigorously its

construction and operating requirements, thus allowing some spectrum to remain fallow in the hands of speculators. The former problem will be resolved by the decision to expeditiously auction the 932/941 MHz spectrum, while the latter problem can be resolved through a Finder's Preference program as discussed below. Rather than re-allocate and restrict the entire Private MAS Band solely for private internal uses, the Commission should, at least for the present time, maintain the status quo, allowing any eligible user to apply for the band on a frequency coordinated, site-by-site licensing basis.

Clearly, there is nothing in the record to date to demonstrate the overwhelming need for private internal use spectrum that would warrant the restriction of this band to purely internal use. While CellNet can reasonably quantify its needs for such spectrum in its system, the very essence of its spectrum efficient technology is the creation, over time, of substantial network capacity which will lie fallow if the future use of the band is unduly restricted. CellNet believes that others who are currently utilizing this band will face a similar choice in the future; there is simply no evidence that current or reasonably anticipated purely private internal uses require the allocation of this entire band in order to be satisfied.

Ironically, such a proposal comes at a time when many sectors in the utility industry, whose members are the primary users of the Power Pool spectrum, are being opened to competition in their core businesses; these licensees, searching for ways to reduce internal overhead, are discovering a growing need to outsource many communications functions to private carriers as a prime opportunity for achieving economic efficiencies. If the Private MAS Bands become limited to private internal use networks only, the channels that are already licensed may become underutilized by those utilities looking for such outsourcing opportunities. At the same time, the demand for additional private carrier networks could overwhelm the other MAS channels. By restricting CellNet and others in this band to purely private, internal

communications, the Commission will be forcing utilities and other CellNet customers who now utilize this band for their internal networks to retain inefficient private networks, rather than obtain service over the capacity of networks like those developed by CellNet to suit their needs.<sup>8</sup>

Under the Commission's proposal the provision of services, for the private internal use of others, as a private carrier on an otherwise private internal MAS system would disqualify the licensee from continuing to operate in the Private MAS Bands exclusively designated for private internal use. Forcing existing private carriers out of the band will reduce the number of choices available to many smaller entities whose MAS needs cannot justify the investment in a private system, and who may not be able to satisfy their internal needs by purchasing the subscriber-based offerings of those entities who successfully purchase spectrum at the auction.

Moreover, limiting expansion and growth opportunities available to companies like CellNet and other entities who would provide private carriage over their Private MAS Bands networks will have significant cost consequences to such entities. While the various MAS bands might appear fungible, requiring movement to either of the other bands, with their significantly different separations between the receive and transmit paths, would in fact require substantial design and development efforts. In addition, licensees in the Private MAS Bands have traditionally operated with significantly lower EIRPs; the 932/941 MHz Bands, for example, are shared with licensees in the Public Mobile Services, with significantly higher EIRPs.<sup>9</sup> As a

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<sup>8</sup> By the same token, those utilities who are looking for means to expand their revenue base to replace revenues lost to competition would similarly be denied the option of making excess capacity on their existing private internal systems available to others on a private carrier basis. Such entities would have no opportunity to maximize the use of their network efficiencies.

<sup>9</sup> To the extent that new MAS users and paging entities may require the higher EIRPs otherwise allowed in these bands, the Commission may need to consider whether additional limitations on power are needed to assure the continued

result, entities like CellNet whose systems are designed to operate at significantly lower power would be forced to redesign to operate at the higher allowable EIRPs, or face virtual obliteration by adjacent channel transmitters overloading their receivers.

The burden of such redesigns would clearly delay the availability of equipment needed for use in already planned networks. Equally significant, in undertaking such development to move existing technologies to a new frequency band, CellNet (and others) would have to delay the development of other planned advances to the existing technology. Moreover, to the extent that CellNet and others will be limited to the other MAS bands for the expansion of existing networks, technology will have to be developed to allow the new networks to communicate and interface with elements of the grandfathered networks in the Private MAS Bands. This could be a daunting, time-consuming, and quite expensive task. Given its current resources and design and manufacturing plans and capabilities, CellNet reasonably estimates that the development of network equipment capable of operating at 932/941 MHz would require more than 180 person-months, and more than 30 months to complete, assuming that personnel and space could be obtained to complete such a project on a timely basis.

Before the Commission adopts a frequency allocation scheme requiring the wholesale change of channels for the future growth of existing systems, there should be a substantial basis for imposing such burdens on MAS licensees. None has yet been demonstrated in the *NPRM*, or otherwise.

In sum, the mixed nature of existing uses of the Private MAS Bands does not lend itself to an exclusive allocation of these bands for purely private internal uses. The existing licensing

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<sup>9</sup>

(...continued)

viability of the band for the lower-powered usages that have historically been developed in the MAS spectrum.

scheme has generally worked quite well; where problems have existed in some markets in the past, those can be ameliorated with means far less drastic than the creation of an exclusive allocation for private internal systems. Implementation of such a proposal would be very disruptive to current and future uses, would present very difficult technical and financial problems for private internal and private carrier users alike, and would deter private internal users from operating at peak spectrum efficiency. The Commission should abandon its proposed exclusive allocation, and instead retain the existing licensing scheme for the Private MAS Bands; all eligible users should be allowed to apply for the channels on a frequency coordinated, site-by-site basis, without restriction on the use of the system for private internal, private carrier, or subscriber-based service.

B. If the Status Quo Is Not Retained, the Commission Should Nevertheless Allow Capacity to Be Made Available on a Private Carrier Basis to Customers for Their Private Internal MAS Uses

As discussed above, the record in this proceeding does not yet justify a change from the status quo. Should the Commission nevertheless decide to make a change and allocate the Private MAS Bands for internal use systems, CellNet urges that it allow existing and future licensees in the Private MAS Bands to offer capacity on a private carrier basis to other eligible users for their internal use.

As noted, CellNet currently provides in limited degree, the opportunity for utilities with which CellNet has a contract for wireless meter reading services to also utilize its network to transmit signals to control various components of the utility's distribution system. The entirety of CellNet's meter reading network is owned and operated by CellNet. However, in these few instances the remote end point would be owned and operated by the utility, and the CellNet network would be a carrier over which the utility communicates for its private internal purposes.

Use of the network in this fashion serves the utility's needs by outsourcing the network design, operation, and maintenance functions to the private carrier, while providing an economic benefit to CellNet from its excess capacity. This is private carriage in the purest sense.

In this regard, the Commission can, and should, recognize the distinction between private carrier licensees who are making capacity available only to eligible business enterprises for their internal use, and licensees who are providing primarily subscriber-based services to the public at large.<sup>10</sup> Clearly, MAS licensees can and do currently perform private carrier functions without offering subscriber-based services, in the ordinary use of that concept. In such cases, private carriers are a resource for private internal MAS licensees who do not wish to make the

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<sup>10</sup> Examples of subscriber-based services include narrowband and broadband Personal Communications Service, Interactive Video and Data Service, Multipoint Distribution Service, Specialized Mobile Radio Service, Direct Broadcast Satellite, Wireless Communications Service, General Wireless Communications Service, Digital Audio Radio Service, Local Multipoint Distribution Service, paging, and cellular telephone service. The Commission has unfortunately often interchanged references to "subscriber-based" services and "private carrier" offerings as if there is no distinction. CellNet believes that this is a misinterpretation of the Congressional mandate as it relates to auctionable services, generally, and the allocation of spectrum between the private and common carrier services, specifically. In discussing the Commission's authority to auction subscriber-based services, Congress clearly intended to include as "subscriber based services" those services characterized by a **high degree of competition** and offered on a **ubiquitous basis to the general public**. In fact, all of the aforementioned services share, or are expected to share, these characteristics. Indeed, licensees in these several services are likely to compete with each other for *subscribers*. Congress could not have intended to include those services that companies like CellNet might offer on their excess capacity as subscriber-based services; these types of services are offered on a long-term contractual basis to a limited numbers of large entities to satisfy these customers' internal communications needs. The fact that they are offered on a "for-profit" basis does not make them "subscriber based" services. The private carrier services that CellNet provides in the Private MAS Bands are unlike the type of offerings that characterize the other services determined to be subscriber-based for purposes of determining auction authority. See, e.g., *Allocation of Spectrum Below 5 GHz Transferred from Federal Government Use*, ET Docket No. 94-32, *Second Report and Order*, 11 FCC Rcd 624, 629 (1995).

investment to provide such services for itself, or who do not have technology as efficient as CellNet's to perform such services in a cost-effective manner.

The FCC has previously recognized the value of allowing licensees to make excess capacity available to others and of pure private carriage in the development of the private microwave services.<sup>11</sup> Specifically, the Commission noted that permitting the sale of services using excess capacity would obviate the need for others to build redundant microwave systems, thereby conserving spectrum; enable smaller businesses to take advantage of the efficiencies inherent in the use of private microwave systems without the capital expenditures associated with construction of such a system; and promote spectrum efficiency by allowing existing facilities to be used to maximum capacity, thereby avoiding the construction of unnecessary new microwave facilities or the assignment of additional spectrum to meet marginal communications requirements.<sup>12</sup>

Allowing such private carriage in the Private MAS Bands will not significantly increase its use or otherwise affect its availability for exclusively internal communications. To the

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<sup>11</sup> See *Amendment of Part 94 of the Commission's Rules and Regulations to Authorize Private Carrier Systems in the Private Operational-Fixed Microwave Radio Service*, PR Docket No. 83-426, *First Report and Order*, 57 RR 2d (P & F) 1486 (1985); *recon. granted in part*, 59 RR 2d (P & F) 1471 (1986) ("Private Carrier Order")

<sup>12</sup> In the same order the Commission pointed to the following benefits to be gained from permitting "entrepreneurs" to provide private carrier service: smaller businesses and local governments would be permitted to satisfy their particularized communications requirements by sharing systems, thereby reducing costs while also assuring communications links in situations where common carriers would not provide service; the need to build redundant microwave facilities would be eliminated, even for eligibles who could afford to build their own systems and who would if private carriage were not available, thereby conserving spectrum; and the efficiencies of data transmission technology (and especially CellNet's unique network) would be available on a more widespread basis.

contrary, by allowing entities like CellNet to benefit from their spectrally efficient technologies by marketing services over excess capacity to other private entities, the Commission will be able to increase spectrum utilization throughout the band. As a result, some spectrum will be freed that might otherwise be licensed to entities for their private internal use who are now being satisfied by these carrier services. Such an approach will also mitigate the substantial negative impact that would occur to current licensees who will otherwise be forced to make the unreasonable choice between changing to different bands to satisfy their expansion and growth requirements, or wasting the benefits of spectrum efficiencies for lack of opportunities to market excess capacity.<sup>13</sup>

C. Any Limitation to Private Internal Operations Should Be Restricted to the Power Pool Frequencies, and the General Access Pool Frequencies Should be Available for Private Carrier and Subscriber-Based Services

If the Commission insists on setting aside some of the MAS channels for purely private internal use, then CellNet believes that the restriction should be limited to only a portion of the Private MAS Bands. In particular, based on an analysis of the current users of the band, CellNet believes that the current and future demand for spectrum that is dedicated to private internal use can be satisfied in the forty 12.5 kHz channels currently designated for the Power Pool, leaving to unrestricted use the twenty-eight 12.5 kHz channels in the General Access Pool.<sup>14</sup>

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<sup>13</sup> In order to enforce the right to provide private carriage, the Commission could condition each license in the Private MAS Bands to limit the use of the channels to applicants who certify that any private carrier offerings of capacity will be limited to customers who certify to the licensee that they will use the band only for their own private internal uses. Moreover, the provision of subscriber-based services to the public could be expressly prohibited.

<sup>14</sup> The General Access Pool channels consist of 14 channels with a 25-kHz bandwidth (or 28 channels with a 12.5-kHz bandwidth), ranging from 952/928.00625 MHz to 952/928.34375 MHz. The Power Pool Channels consist of 20 channels  
(continued...)

CellNet has analyzed 19 of the largest MSAs in order to develop a reasoned determination as to how the spectrum is currently being used. CellNet's calculations generally confirm the Commission's finding that about 70% of the licenses granted for the Private MAS Bands appear to be used for public safety, business, or industrial entities to satisfy internal communications needs. However, CellNet found on closer examination that there is a large disparity between the Power Pool channels and the General Access Pool channels in determining how licensed channels are currently being utilized.

CellNet found that in the Power Pool approximately 84% of current licensees in these markets appear to be using the channels for their private internal networks. However, only 39% of General Access Pool channels appear to be used by licensees for their private internal purposes.<sup>15</sup> The balance — a substantial majority — of the licenses have either designated their use as private carriage or are licensees whose use is generally understood to involve private carriage or subscriber-based services.

If exclusivity is to be provided for private internal uses in the Private MAS Bands, such exclusivity can appropriately be limited to the Power Pool, where there already is a large private internal use of MAS spectrum, and where such restriction is likely to have a much smaller detrimental effect on existing licensees in the band. On the other hand, by allowing licensees in the General Access Pool to use their spectrum for internal use, the marketing of services over

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<sup>14</sup> (...continued)

with a 25-kHz bandwidth (or 40 channels with a 12.5 kHz bandwidth) ranging from 952/928.35625 MHz to 952/928.84375 MHz. *See* §§ 101.147(b)(1) & (2).

<sup>15</sup> This disparity may be a result of the historical limitation of permitting only Power Radio Service eligibles to obtain MAS frequencies in the Power Pool, which was the original allocation of MAS frequencies. *See Amendment §§ 22.501(g)(2) and 94.65(a)(1) of the Rules and Regulations to Re-Channel the 900 MHz Multiple Address Frequencies*, RM-5206, *Report and Order*, 3 FCC Rcd 1564 (1988).

excess capacity, pure private carriage, or even the offering of subscriber-based services, private internal users can continue to expand in this Pool or the Power Pool, while other licensees will not be forced to redesign and redeploy their networks in another frequency band.<sup>16</sup>

D. Whether or Not the Commission Reserves Any Part of the Private MAS Bands for Exclusive Private Internal Use, All Incumbents Licenses Should Be Fully Grandfathered

In the *NPRM*, the Commission has recognized that the public interest will be served “by allowing incumbent MAS licensees to continue operating under their current authorization.” CellNet heartily endorses this decision. Entities like CellNet have spent millions of dollars developing innovative technology and wireless network infrastructure in creating many new product and service offerings in the Private MAS Bands. There is no basis for terminating the right to continue existing operations even if the Commission determines to change licensing schemes for the future. To avoid any doubt, the Commission should make clear that incumbent licenses in all MAS Bands -- whether the bands are licensed geographically or on a site-by-site basis -- may continue to operate under their existing authorizations, including the provision of private internal, private carrier or subscriber-based services, consistent with the operating and technical parameters finally adopted for the Bands.

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<sup>16</sup> Moreover, to the extent that the Commission determines to allow the provision of subscriber-based services in this portion of the band, the General Pool channels would be ripe for licensing through competitive bidding. While such a licensing approach would have some impact on existing incumbents who are unsuccessful in winning licenses in the auction, at least all parties would have a fair opportunity to maintain their use of the band without suffering the burden of an automatic relocation to another MAS channel group. And incumbents who are unsuccessful in achieving licenses for the band will be able to negotiate with the winning licensee for the continued use of the spectrum and expansion of their system, either through partitioning, spectrum disaggregation or spectrum leasing or resale.

E. Incumbents in Any Spectrum Reserved for Private Internal Use Should Be Given Adequate Opportunity to Meet Short-Term Requirements

As noted above, any restrictions on the future use of the Private MAS Bands which would prohibit expansion by licensees who provide private carrier services would require such licensees to engage in vast amounts of research and development to implement systems operating in different bands. Beyond the obvious economic detriment and substantial negative impact on other development that such a move would engender for CellNet, CellNet faces equally significant concerns if it is unable to fulfill its existing contractual commitments. And although as noted the Commission has properly determined in the *NPRM* that existing operations should be grandfathered, CellNet believes that additional transitional flexibility must be provided to incumbent licensees who may not otherwise be eligible for future licensing in the “exclusively private” Band, in order to allow for the orderly movement of their systems and operations to other MAS channels.

The problem is particularly acute for entities like CellNet who have engaged in long-term relationships with their customers to develop large-scale networks. In CellNet’s case, contracts with utilities take many months to develop and plan; thereafter, the development of the network involving hundreds of thousands of meters/endpoints, while expeditious relative to other wide area wireless data network deployments, still covers several years. If CellNet is unable to engage in an orderly build-out, using existing and, if needed, additional channels in the Private MAS Bands, its ability to satisfy existing contracts and those currently under negotiation would be severely impacted.

There is no need to impose such a “flash-cut” exit strategy on existing licensees. CellNet has relied in good faith on the reasonable expectation of the continued availability of the Private MAS Bands for its future network deployments. While the Commission may reasonably decide

to freeze out any new licensees whose uses do not satisfy the restricted, internal use nature of the Bands, there is no need to cut off existing licensees' expectations. Instead, the Commission should provide a limited opportunity for existing licensees who may not be able to qualify for future licensing in any portion of the MAS Band that is "restricted" to private internal use, to continue to develop existing systems by licensing new or modified stations in the Bands. This allowance should extend for a period of two years after the adoption of final rules in this proceeding.

During this two-year transition period, incumbent licensees would be permitted only (a) to add new MAS spectrum to existing systems, *i.e.* to add additional channels to existing sites, or (b) to add additional geographic area to an existing system for new MAS stations so long as they are located within a 90-mile radius of existing licensed stations.<sup>17</sup> Such a two-year transition period would provide existing licensees with sufficient time to satisfy near-term growth requirements for existing contractual relationships, as well as the time to develop the technology and hardware needed to continue their operations in different MAS bands. By restricting such transitional opportunities to the expansion of existing systems, there is little likelihood that it could be used to speculate or warehouse available spectrum in the Private MAS Bands.

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<sup>17</sup> The 90-mile radius equates to the fixed-to-fixed co-channel protection distance currently provided to neighboring systems, thereby limiting existing licensees to expanding no further than the "next" system in any direction.

## 2. Finder's Preference Program

### A. A Finder's Preference Program Is Needed to Preserve Any Parts of the Private MAS Bands That Are to Be Licensed on a Site-By-Site Basis

The problems of spectrum congestion in the Private MAS Bands in many major metropolitan markets is well known to the Commission. As noted above, it may well be a driving force in retaining some portion of the Private MAS Bands exclusively for private internal use. While CellNet does not, as noted, support such an exclusive allocation, the Commission's proposal does highlight the need for more vigorous enforcement of existing construction and operation requirements, in order to deter speculation in, and increase utilization of, the MAS channels. To that end, CellNet believes that the use of the Private MAS Bands can be substantially enhanced by adopting a Finder's Preference program for the MAS radio service, assuring that the status quo licensing approach can be maintained without undue spectrum congestion.

Although the Commission's Part 101 Rules contain provisions to discourage spectrum warehousing,<sup>18</sup> all of these provisions assume, in large part, licensee self-policing and surrender of scarce frequencies. Given the lack of sufficient FCC enforcement resources, unless a licensee voluntarily returns unused spectrum, many unconstructed or non-operational channels remain in a licensee's inventory and on the Commission's database. Others who desire to provide service on those channels at locations within the minimum co-channel separation distance of the unused station are frustrated from obtaining those channels. In fact, the only mechanism currently

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<sup>18</sup> See § 101.63(a) & (b) (failure to be in operation within 18 months), §§ 101.63(e) & 101.65(a)(1) (failure to meet construction deadlines), § 101.65(a)(3) (voluntary removal or alteration of facilities that render the station non-operational for 30 days or more), and § 101.65(d) (permanent discontinuance of service). The Commission considers a station that is inoperative for one year or more as having been permanently discontinued. *Id.*

available for retrieving such inventoried channels (in the absence of an FCC field investigation or audit, which is, of necessity in light of limited resources, a rarity) is an informal complaint to the FCC staff.

Under the current MAS regulatory scheme, little incentive exists for prospective MAS licensees even to ascertain whether MAS frequencies are in use. The reason is simple: the party spending the resources necessary to identify the unused frequency (the “finder”) is not guaranteed an opportunity to obtain that frequency for its own use. If the Commission verifies the information provided by the finder, the finder must wait for the frequency to appear on a take-back list; all qualified applicants are given as equal a chance as the finder in obtaining the recovered channel once the filing window opens. Instead, some benefit should be created to encourage industry members to police the speculators.

To provide a much more efficient and fair manner for returning unconstructed channels into circulation for licensees who would actually use them, a finder’s preference program should be established. While construction and operation deadlines may deter spectrum warehousing in nascent services, finder’s preference programs allow licensees in more mature, heavily encumbered spectrums to assist the Commission in ensuring that all licensed frequencies are in use. In addition, a finder’s preference provides incentives to the appropriate entities — those most interested in putting spectrum to efficient use.

**B. The Finder’s Preference Program Should Provide an Expeditious Means for Determining the Validity of a Request and for Re-Assigning to the Finder Any Channels for Which the Licensee Is Not in Compliance**

CellNet recommends that the MAS finder’s preference program operate in a similar manner to other finder’s preference programs, but with an even more expedited process for getting the license away from the entity who has failed to use it and into the hands of the finder